

PHYSICS NMDCAT

TOPIC WISE TEST (UNIT- 7)

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TOPICS:

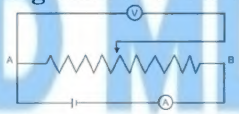
✓ **Current Electricity**

- Q. 1** For which of the following the resistance decreases on increasing the temperature
A. Copper
B. Tungsten
C. Germanium
D. Aluminium
- Q. 2** For a metallic wire, the ratio V/i (V = the applied potential difference, i = current flowing) is
A. Independent of temperature
B. Increases as the temperature rises
C. Decreases as the temperature rises
D. Increases or decreases as temperature rises, depending upon the metal
- Q. 3** The resistances of a wire at temperatures $t^{\circ}\text{C}$ and 0°C are related by
A. $R_t = R_0(1 + \alpha t)$
B. $R_t = R_0(1 - \alpha t)$
C. $R_t = R_0^2(1 + \alpha t)$
D. $R_t = R_0^2(1 - \alpha t)$
- Q. 4** Total number of electrons present in 4 amperes current flowing for 1 sec is:
A. 2.5×10^{19}
B. 1.25×10^{13}
C. 2.5×10^{20}
D. 6×10^8
- Q. 5** A cell has an emf of 1.5 V. When circuit is shorted, it gives a current of 3A. The internal resistance of the cell is
A. 0.5Ω
B. 4.5Ω
C. 2.0Ω
D. $\frac{1}{4.5} \Omega$
- Q. 6** If a source of emf is traversed from positive to negative the potential change will be
A. Positive
B. Zero
C. Negative
D. Constant
- Q. 7** A nichrome wire 50 cm long and one square millimetre cross-section carries a current of 4A when connected to a 2V battery. The resistivity of nichrome wire in ohm metre is
A. 1×10^{-6}
B. 4×10^{-7}
C. 3×10^{-7}
D. 2×10^{-7}
- Q. 8** Calculate the amount of charge flowing in 2 minutes in a wire of resistance 10 Ohm when a potential difference of 20 V is applied between its ends
A. 4 C
B. 20 C
C. 240 C
D. 120 C
- Q. 9** Internal resistance of ideal current source is
A. Infinite
B. Zero
C. Very low
D. Very high
- Q. 10** Resistivity at a given temperature depends upon:
A. Area of cross-section
B. Length
C. Nature of material of conductor
D. Both length and area
- Q. 11** One Ohm is equal to:
A. VC^{-1}
B. CV^{-1}
C. AC^{-1}
D. VA^{-1}
- Q. 12** A cell of emf E Volt and internal resistance r ohm is being charged with a current of i amp. Then the terminal potential difference is



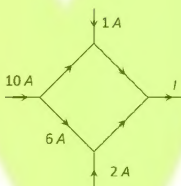
- A. E
C. $E - ir$
- Q. 13 Find the terminal potential difference of emf of the battery is 8V and its internal resistance 0.5 ohm and current is 4A
A. 4 volt
C. 10volt
- Q. 14 The resistance of a conductor is 5 ohm at 50°C and 6 ohm at 100°C. Its resistance at 0°C is
A. 1 ohm
C. 3 ohm
- Q. 15 Which expression is the best to compare the power dissipation in different resistors which are connected in parallel
A. $I^2 R$
C. IV
- Q. 16 The SI unit of electromotive force (emf) is:
A. Newton
C. Volt
- Q. 17 The resistance of semiconductor
A. Increases with increase of temperature
B. Does not change with change of temperature
C. Decreases with increase of temperature
D. First decreases and then increases with increase of temperature
- Q. 18 A _____ circuit gives continuously varying potential difference
A. Rheostat
C. Resistor
- Q. 19 If a bulb has a 20W power. If it is working at 60% efficiency, then its output power is
A. 12W
C. 20W
- Q. 20 An electrical motor has power 2000 W and the resistance is 2 Ω. Find potential difference.
A. 6V
C. 0.5V
- Q. 21 In case of potentiometer the ratio of e.m.f's is equal to the ratio of balanced
A. Mass
C. Length
- Q. 22 For an open circuit
A. $E = V_t$
C. $E < V_t$
- Q. 23 Which of the following has a negative temperature coefficient?
A. C
C. Fe
- Q. 24 P_{out} will be maximum when
A. $R > r$
C. $R < r$
- Q. 25 The resistance of a conductor at absolute zero is
A. Zero
C. Positive
- Q. 26 The resistivity of a material of resistance R, cross sectional area A, and length L is given by
A. $\rho = \frac{AL}{R}$
C. $\rho = \frac{RA}{L}$
- B. $E + ir$
D. $E - iR$
- B. 6volt
D. 8volt
- B. 2 ohm
D. 4 ohm
- B. $\frac{V^2}{R}$
D. Any of these may be used
- B. Ampere
D. Joule
- B. 15W
D. 18W
- B. 63.25V
D. 0.09V
- B. Time
D. Current
- B. $E > V_t$
D. $E = V_t + Ir$
- B. Mn
D. Ag
- B. $R = r$
D. None of these
- B. Negative
D. None of the above
- B. $\rho = RAL$
D. $\rho = \frac{L}{RA}$



- Q. 27 A wire of uniform cross section A, length L and resistance R is cut into two equal parts. The resistivity of each part is
 A. Doubled B. Is halved
 C. Remains the same D. Is one-fourth
- Q. 28 Kirchhoff's voltage law is based on law of conservation of
 A. Momentum B. Current
 C. Charge D. Energy
- Q. 29 The resistance of a wire is 10Ω . Its length is increased by 10% by stretching. The new resistance will now be
 A. 12Ω B. 1.2Ω
 C. 13Ω D. 11Ω
- Q. 30 Which one of the following bulbs has the least resistance?
 A. 100 watt B. 200 watt
 C. 300 watt D. 60 watt
- Q. 31 The unit of conductivity is
 A. $\text{ohm} \times \text{m}$ B. mho m^{-1}
 C. $\text{ohm}^{-1} \text{m}^{-1}$ D. Both B and C
- Q. 32 Internal resistance is the resistance offered by
 A. Source of e.m.f B. Conductor
 C. Resistor D. Capacitor
- Q. 33 Wheat stone bridge is an arrangement consisting of
 A. 2 resistances B. 3 resistances
 C. 4 resistances D. 5 resistances
- Q. 34 The temperature coefficient of resistance of a material is expressed as
 A. $\alpha = \frac{R_o - R_t}{R_o t}$ B. $\alpha = \frac{R_o + R_t}{R_o t}$
 C. $\alpha = \frac{R_t - R_o}{R_o t}$ D. $\alpha = \frac{\rho_t - \rho_o}{R_o t}$
- Q. 35 The terminal voltage in the presence of the current would be
 A. Less than the emf by Ir B. Greater than emf by Ir
 C. Equal to emf by Ir D. Zero
- Q. 36 One kilowatt hour is the amount of energy delivered during
 A. One second B. One day
 C. One minute D. One hour
- Q. 37 In the given circuit as the sliding contact C is moved from A to B the readings of

 A. Both the ammeter and the voltmeter remain constant
 B. Both the ammeter and the voltmeter increase
 C. The ammeter remains constant but that of the voltmeter increases
 D. The ammeter remains constant but that of the voltmeter decreases
- Q. 38 A wire of length L and resistance R is stretched in such a way that its final length become 4 L. The resistance of this wire will now be
 A. R B. 16 R
 C. $R/4$ D. 4 R
- Q. 39 If radius of a wire is made double and length is reduced to 3 times, the resistivity of wire will
 A. $\frac{3}{4}$ times B. Remain constant
 C. $\frac{3}{4}$ times D. $\frac{2}{3}$ times
- Q. 40 An energy source will supply a constant current into the load if its internal resistance is
 A. Zero but less than the resistance of the load



- B. Zero
C. Very large as compared to the load resistance
D. Equal to the load resistance
- Q. 41** For an ohmic conductor, doubling the voltage without changing the resistance will cause the current to:
- A. Decrease by a factor of 4
B. Decrease by a factor of 2
C. Remain unchanged
D. Increase by a factor of 2
- Q. 42** A battery whose emf is 40 V has an internal resistance of 5 Ω . If this battery is connected to a 15 Ω resistor R, what will be the voltage drop across R?
- A. 10 V
B. 30 V
C. 15 V
D. 40 V
- Q. 43** Reciprocal of resistivity is called _____:
- A. Resistance
B. Inductance
C. Conductivity
D. Flexibility
- Q. 44** There are three bulbs of 60 W, 100 W and 200 W which bulb has thickest filament.
- A. 100 W
B. 200 W
C. 60 W
D. All
- Q. 45** The length of the wire is doubled. Its conductance will be
- A. Unchanged
B. Halved
C. Quadrupled
D. 1/4 of the original value
- Q. 46** The figure shows a network of currents. The magnitude of currents is shown here. The current I will be



- A. 3 A
B. 9 A
C. 13 A
D. 19 A
- Q. 47** An electric iron is marked 20 volts 500 W. The units consumed by it in using it for 24 hours will be _____:
- A. 12
B. 24
C. 5
D. 1100
- Q. 48** A 100 W, 200 V bulb is connected to a 160 V supply. The actual power consumption would be:
- A. 64 W
B. 72 W
C. 100 W
D. 90 W
- Q. 49** The resistance of a coil is 4.2 ohm at 100 $^{\circ}\text{C}$ and the temperature coefficient of resistance of its material is 0.004/ $^{\circ}\text{C}$. Its resistance at 0 $^{\circ}\text{C}$
- A. 6.5 ohm
B. 5 ohm
C. 3-ohm
D. 4 ohm
- Q. 50** If a resistor is transversed in the opposite direction of current, then the change in potential is
- A. Zero
B. Negative
C. Positive
D. Constant

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